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ABSTRACT

Elementary schools in Knox County, Tennessee employ music specialists who spend about one hour weekly instructing individual elementary classes in music. Students in those classes receive about 64 music lessons per school year. The music curriculum in Knox County includes the six major elements of music: melody, harmony, rhythm, style, expressive qualities, and form. Sequentially taught lessons using computers and music software as teaching tools should help the teacher cover all elements of music. Students have the opportunity to use their senses with multi-media software. A project was implemented with 30 second-grade students, randomly chosen from an inner city, at-risk Title I school and then randomly placed within one of two groups. "Music Ace" software was used as a teaching tool to introduce beginning music notation to the treatment group. Additionally, the treatment group also learned to interpret that notation into pitch identification through singing specific pitches with the aid of "Music Ace." A combination of Koday, Orff, and Dalcroze methods were used to teach the second group, the traditional group, the same beginning music notation and interpretation of notation into pitch identification. Eight lessons were taught to each group and then a posttest was given to individual students; individual posttest scores were compiled resulting in a group score. Each group's scores was compared by t-test and found to show no statistical difference in significance. (Contains a table, 2 figures, a 21-item bibliography, and 5 Web resources.) (Author/BT)

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ED 442 729

A COMPARISON OF A TRADITIONAL MUSIC TEACHING METHOD WITH MUSIC ACE

A Research Project Presented to

The Department of Teacher Education

Johnson Bible College

In Partial Fulfillment

Of the Requirement for the Degree

Master of Arts in Educational Technology and Bible

SO 031 894

By

Barbara S. Baker

April 2000

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APPROVAL PAGE

This Research Project by Barbara Scarborough Baker is accepted in its present form by the Department of Teacher Education at Johnson Bible College as satisfying the research paper requirements for the degree Master of Arts in Educational Technology and Bible.

Chairperson, Examining Committee

Member, Examining Committee

Member, Examining Committee

Member, Examining Committee

May 5, 2000

Date

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ABSTRACT

Elementary Schools in Knox County, Tennessee employ music specialists who spend about 1 hour per week instructing individual elementary classes in music. The students in those classes receive about 64 music lessons per school year. Absolutely every music period must be used to the fullest. The music curriculum used in Knox County includes the 6 major elements of music, melody, harmony, rhythm, style, expressive qualities and form. Sequentially taught lessons, using computers and music software as teaching tools should help the beset teacher cover all elements of music, helping students to use their minds well. Students have the opportunity to learn using various senses with multi-media software.

Second grade students, randomly chosen at an inner city at–risk, Title 1, school were randomly placed within one of two groups. The teacher used Music Ace software as a teaching tool to introduce beginning music notation to the treatment group. In addition, the treatment group would also learn to interpret that notation into pitch identification through singing specific pitches with the aid of Music Ace.

The teacher used a combination of Koday, Orff and Dalcroze methodologically in teaching the second group the same beginning music notation and interpretation of notation into pitch identification. This was the traditional group.

Eight lessons were taught to each group and then a post-test was given to individual students. The individual post-test scores were compiled resulting in a group score. Each classes' scores were compared by t-test and found to show no statistical difference in significance.

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Chapter 1

INTRODUCTION

Significance of the Problem

Elementary schools generally have a very limited amount of classroom music time in which to present a wonderful array of musical experiences. There are commonly around fifteen students in each class in the school examined in this study. Each class receives a thirty-minute music class twice a week for a total of sixty-four class periods per school year. The time in those classes is usually distributed in the following manner. It takes about five minutes to get the students seated and the roll checked. Afterwards an opening activity introduces the lesson. It takes about three minutes at the end of the class for a closing activity including getting the class ready for departure from the music room. The remaining twenty-two minutes is instructional and practice time. Therefore, the students must be drawn into the twenty-two minute instructional time quickly. The material must be immediately engaging to the students. It is called a "hook" in show business. In addition, the material presented must address the curriculum.

Statement of the Problem

In accordance with Goals 2000, adopted by the President and governors of the United States, this study will try to address one of the National Education Goals. "All students will leave grades 4, … having demonstrated competency over challenging subject matter including English; … arts, history, and geography, and every school in America will ensure that all pupils learn to use their minds well…." (U.S. Government Printing Office Bulletin, p. 7). Congress passed The Goals 2000: Educate America Act into law in 1998. Music

teachers in Knox County adopted the National Standards for Music Education about 1996. This study will address the second grade standards for singing, reading and notating music. Standards in music refer to goals to be accomplished by the student. The goal for this study will be that students will recognize melodic symbols both aurally and visually.

Previous to the implementation of the National Standards, the State of Tennessee Department of Education approved a state curriculum guide in 1989, which was more comprehensive in scope than the National Standards. The Tennessee Elementary Music Curriculum Guide included six strands which were rhythm, melody, expressive qualities, form, harmony and style. The curriculum guide presents the concepts sequentially. Each concept is built upon the previous concept. The objectives of the curriculum guide are both terminal and instructional. Student's experiences are very imitative and teacher led. This study will address the strand of melody, "terminal objective 281B6: to understand that symbols can represent melodies" (The Tennessee Elementary Music Curriculum Guide, p.85). The instructional objectives will be to experience symbols, which denote melodic movement visually and aurally. The student skills include reading, singing, playing, moving, listening and creating. The content of the lessons outlined in the curriculum guide will include numbered lines and spaces on the staff and introduction of new pitches. Students will experience the new pitches by singing and playing over a long period of time. The lessons will continue introducing pitches in relationship to each other in patterns, echo-singing patterns and making the transition to symbols and creating melodic patterns. The next step will be echo singing patterns that contain the new pitches using neutral syllables such as "do re mi." Sequentially a pitch will be introduced in relationship to known pitches.

The curriculum guide clearly states that this process will take several weeks to accomplish.

The Music Curriculum Guide "provides direction for a statewide program of music instruction, taught by a qualified instructor with sufficient contact time with each child. Where contact time and teacher qualifications are limited, expectations will have to be adjusted" (The Tennessee Elementary Music Curriculum Guide, p. iii).

Computer software may be an aid to the hurried elementary music teacher who is making an effort to use the music class time more efficiently. The software Music Ace by Harmonic Vision contains lessons that introduce the lines and spaces of the music staff. The lessons sequentially introduce pitches placed on the staff, denoting melodic movement visually and aurally always in perfect pitch. Music Ace also contains a game element, which allows the student additional visual and aural practice in placing notation on the musical staff. In addition, Music Ace has a section called Doodle Pad where the student can create melodic patterns.

Research does exist comparing teaching methods such as Koday, Orff and Dalcroze, but little research exist comparing these methods or combinations of these methods with commercially available music software. This study will examine the effectiveness and efficiency of teaching melodic recognition both visually and aurally. Reading musical symbols and being able to accurately produce with the voice a pitch that the student has heard using a combination of teaching methods will be compared to teaching with computer software as a teaching tool.

Definition of Terms

Assessment Assessment in this study is defined as appraisal of student learning.

The assessment will include a written testing of learned musical symbols and evaluation of vocal pitch accuracy measured with a Chromatic Tuner while the student sings a specific pitch.

Terminal Objective According to The Tennessee Elementary Music Curriculum Guide a terminal objective is defined in these terms:

> A terminal objective is a statement of expectation, which targets learning that should be developed over a period of time. Terminal objectives … imply experiential activities [sic] which are dependent on substantial teacher guidance. Such experiences lay a foundation for later understanding (The Tennessee Elementary Music Curriculum Guide, p. iii).

Understanding Understanding in this study implies "independent recognition, reproduction or other practical application of the knowledge" (The Tennessee Elementary Music Curriculum Guide, p. iii).

Instructional Objectives Instructional objectives in this study identify specific learning in a lesson, which should be assessed by the teacher.

Learning In this study learning is an accumulation of sequential concepts (The Tennessee Elementary Music Curriculum Guide, p. iii).

Aural Concepts The term aural concepts is interpreted to be that the student will be able to reproduce a sound (The Tennessee Elementary Music Curriculum Guide, p. iii). The student will accurately sing the pitch that he has heard. Accuracy will be tested with a chromatic tuner.

Visual Recognition The term visual recognition means that the student will recognize symbols by sight and be able to interpret symbols (The Tennessee Elementary Music

Curriculum Guide, p. iii). The student will identify musical symbols such as a staff, treble clef sign, and the names of the second line, second space and third line of the treble staff. The student will be able to name the symbols and translate that knowledge into singing or instrumental playing.

Notated Music For the purposes of this study notated music refers to musical symbols as seen by the students.

Standards in Music For the purposes of this study standards in music are the goals to be accomplished by the student.

Audiation The term audiation is defined as the ability to "hear" music for which the sound is not physically present (Jordan-DeCarbo p. 35).

Ever-present Perfect Pitch For the purposes of this study ever-present perfect pitch is the exact number of sound waves, which produce a melodic tone and are never altered because of their digital quality.

The Performance Skills and Understanding of Students In this study the performance skills and understanding of students will refer to learning that there are lines and spaces on a staff, learning new pitches, being able to sing those pitches in patterns, and students will utilize those pitches in singing, reading notated music or symbols, listening and creating music. Students will be able to read pitches from a staff and label one of the pitches so that the other pitches can be determined (The Tennessee Elementary Music Curriculum Guide, p. 84-86).

At-risk Title I Schools According to federal government guidelines schools

with populations of at least 65% free and reduced lunch recipients are considered to be at-risk Title I Schools. These schools receive additional federal funding.

Traditional Method of Teaching Music In this study traditional method of teaching music will refer to a combination of Koday, Orff and Dalcroze methodologically. This will include the use of solfege, playing Orff instruments and movement as outlined in the suggested lessons and activities from the Tennessee Music Curriculum Guide of 1989. Solfege is "1: the application of the solfa syllables to a musical scale or to a melody 2: a singing exercise especially using solfa syllables" (Cove p.830). The group of students who receive lessons from the traditional method will be called the traditional group.

Music Ace Lessons The term Music Ace will refer to the computer software by Harmonic Vision, which includes lessons, games and The Doodle Pad. All three of these activities, the lessons, games and The Doodle Pad will be referred to as the lessons.

The Music Ace Group The term the Music Ace group will refer to the treatment group who will receive Music Ace lessons.

Limitations of the Study

Two classes of second grade students taught by experienced classroom teachers will be studied in an inner-city at-risk Title I elementary school in Tennessee. The music teacher will conduct the study in the music classroom. One limitation of this study will be the small number of students in each group. There are 15 students in the Music Ace group. There are 15 students in the traditional group.

The classes in the study will not represent a true random sample due to the limitations

of the music class schedule and the small sampling involved in the study.

Assessment is also a definite limitation for music teachers. At the local school level, music teachers have been limited to teacher-designed assessments such as performance-based rating scales, criteria-specific rating scales, intended to come up with more objective evaluations of performance-based activities, interviews and or journals and portfolios (Robinson, 1995). The students are unaccustomed to traditional testing in their music classes. Outcomes of the testing may be effected due to the use of a chromatic tuner to measure pitch. The teacher will demonstrate its use and explain that the instrument measures the student's ability to sing "on pitch." None of the students have used this instrument previously.

Other limitations of the project will be that the teacher will be the researcher and the tester in both the traditional group and the treatment group. The same teacher will also gather the data and the statistical analysis.

The samples are a definite limitation. Most students have used computers in the classroom, and generally classroom lessons are not taught using the computer except in one of the second grade classes and one kindergarten class in this school setting. The students from those two classes are randomly placed within the school in subsequent grade levels.

Null Hypotheses

There is no significant difference in the level of performance skills and understanding of symbols representing melody between the students in the traditional group and the students in the treatment group using the Music Ace software program by Harmonic Vision at the .05 level of significance.

Chapter 2

REVIEW OF RELATED LITERATURE

Musical Aptitude Profile.Gordon-Edwin

There is a great deal of literature in music education concerning the lack of standardized testing. Musical Aptitude Profile. Gordon-Edwin is a series of aptitude tests, which are mentioned often (Vispoel and Coffman, p. 29, Gordon, p. 1, Jordan-DeCarbo, p. 36, Cope p.40). "This test is two tests designed to diagnose and measure potential: The only brief longitudinally valid music aptitude tests for grades K-6" (Gordon, p.1).

> As more and more emphasis is placed on student performance and teacher accountability, measurement and assessment are becoming increasingly important to all music educators. With the inclusion of music as a core subject in the Goals 2000: Educate America Act, it is critical that music educators possess not only comprehensive knowledge of the subject matter but also the ability to assess the learning of that subject matter. A concerted effort to use valid measurement and assessment processes can strengthen the effectiveness of music education and provide valuable information for individual programs (Cope p. 39).

Given the importance of music and the general prevailing attitude that music is only a superfluous trifle, assessment testing in music is of great importance. Music has such great value to the student as well as people of all ages that music can not be ignored in public education.

Pitch Extractors

With the development of music software, Computer-Based Music Instruction, MIDI, electronic keyboards and synthesizers, music educators may finally have applications to precisely measure student accuracy. Pitch extractors are able to test pitch-matching accuracy. This technology is the result of continuing research in "digital information

transmitted as MIDI data. The Computer-Based Music Skills Assessment Project … made extensive use of a new pitch extractor, the Pitchboard, developed by Adams-Fravel, Incorporated" (Peters, p. 25). Other pitch extractors have been developed which will arm the researcher with more scientific data to help justify the money and time that music education requires in the public school setting.

Multiple Intelligences

Music educators have embraced Howard Gardner's theory of multiple intelligences in an effort to justify music education in our schools (Kassell, p. 29).

> An established music program that emphasizes an understanding of the sound/symbol notational system, the importance of acquiring discerning listening skills, and the significant social and historical role of music within cultures would also allow students to understand not only a social and musical historical framework for rap, but also its underlying rhythmic and melodic constructs. This kind of musical understanding would raise an awareness of rap that would transcend linguistic imagery and would provide a framework for a musical symbolic system or notation system; Gardner believed each intelligence must have such a system. Students who are able to analyze the musical value and linguistic implications of rap would be in a better position to make connections with other forms of musical structures. Music plays a powerful role in this perspective; it is constructive in its application, both musically and educationally (Kassell, p. 32).

Limitations of Music Education

Elementary music education schedules and resources are limited,

> where full-time positions for music specialists do exists these instructors typically 'float' among several buildings and attempt to teach large student populations (ranging anywhere from 100 to more than 1000) while using less than 5% of the students' total instructional time -- conditions that provide for spurious learning at best (Austin, p. 1).

National Assessment of 1997 Arts Report Card

The National Assessment of 1997 Arts Report Card conducted by the National Center for Education Statistics in Washington, DC. states that:

> Too many young people lack the skills and knowledge that are necessary to experience the satisfaction that music can bring because too many schools systematically deprive students of musical opportunities by failing to provide sufficient time and staff for curriculum-based instruction that would lead to the skills and knowledge called for in the National Standards for Arts Education (Cope, p.40).

There is need for formal assessment. The public is demanding that music educators explain their worth. Music educators must display emphatic results.

> As the beginning of a new century approaches, phrases such as "Twenty-first Century School," "New Century School," and "America 2000 School" have become so familiar and repetitive that the credibility of the schools involved in this educational reform effort may be weakened. Some music educators are skeptical of reform movements. Frequently having to fight against the total annihilation of school music programs, musicians sometimes view educational reform as another threat to their existence.
> Music educators must prepare students to be the musicians of the next century. It's important that students be technologically literate in music as well as in other areas. Computers, CD-ROMs, drum machines, MIDI keyboards, synthesizers and video laser discs are new tools for teaching (Forest, p.35

Assessement

Assessment is the ability to identify areas of improvement (Cope, p. 40). On a national level music education professionals have relied on Standardized tests such as the Gordon Musical Aptitude Profile, the Seashore Measures of Musical Talents, the Colwell Music Achievement Test, and the H. D. Wing Standardized Tests of Musical Intelligence for the purposes of assessment (Vispoel and Coffman, p.29). Textbook publishers have produced a limited number of assessments within texts. For music educators assessment also means "what gets measured gets done" (Lehman, p. 37).

Another assessment source of the National Standards may be Performance Standards for Music: Strategies and Benchmarks for Assessing Progress toward the National Standards, Grades PreK-12 (MENC, 1996). The MENC is the Music Educators National Conference.

For the purposes of this study the Boss Chromatic Tuner TU-12 Digital Processing Instrument will be used to accurately assess the student's ability to match pitches at the end of the lessons. As the student matches a specific pitch that I have played on the electric piano, the chromatic tuner will register.

Audiation

Music, exclusive of computer usage, seems to be the prevalent attitude among many music educators who have traditionally used a combination of Dalcroze, Orff and Koday techniques in the teaching of content (Jordan and DeCarbo, p. 34). Many others feel that computers can aid and be inclusive, in addition to being such a gift to music teachers both in time and in the ability to visualize abstract concepts. Software presentations always have perfect pitch. These software programs could be especially important in elementary music classes. Software programs are capable of aiding the music teacher in audiation. Audiation is the ability to "hear" music for which the sound is not physically present. Students should be able to hear, label, and symbolize and in that order (Jordan – DeCarbo, p. 36). The phenomenon of ever-present perfect pitch presented to students by the use of computer software is deserving of further investigation.

"Working memory limits may be exceeded" in long naturalistic listening sessions such as in concert halls. The short musical stimuli that will be recalled in this study should not require a long attention span. However "motivation may be a significant contributing factor" in those students who "may simply not be motivated to listen attentively… thereby not detecting the appearance of a new musical event" (Kelly, p.1).

Genuine or Performance Understandings

Both of the treatments in this study, the traditional lessons and the Music Ace

lessons, involve "genuine or performance understandings" of certain skills, in particular, visual and aural recognition of pitch and the symbols that represent that pitch (Gardener, p. 206). The National Standards present a base level of understanding in thinking skills and higher order concepts (Kassell, p. 32).

Many music educators still ask the question however, "is computer technology worth the expense? Does the computer bring an advantage or capability to music education that only the computer can provide" (Dunnigan, p.32)?

> If characteristics of the best teachers can be implemented into well-constructed programs (software) some aspects of a good teacher's strategies can be captured and reproduced. The intention would not be to replace teachers, but to give them some concrete examples of math topics and strategies and allow them to step back and observe the children's interactions, understandings, and misconceptions (Druin and Solomon p. 49).

The same strategies will apply to other subject matter including music.

> Drill and practice is seen as a clear example of the computer as an Interactive Textbook and acts like a very individualized and patient teacher who will lead a child at his or her own rate through a curriculum by a series of planned exercises (Druin and Solomon p. 60).

Musical Intelligence

Musical intelligence is "a way of knowing. To be able to think musically, whether as a performer, composer or listener, is to be able to think musically intelligent."(Murphy, p.40).

Student Production

For the purposes of this study student production "implies an activity in which the student produces music independently" either by playing pitches on instruments or singing (The Tennessee Elementary Music Curriculum Guide, p. iii).

Aural Stimuli

Experienced teachers know that sore throats, fatigue, and stress effect the music teacher's singing voice. Music teachers are aware that playing an untuned piano is not a very musically aesthetic situation for students. Autoharps change pitch with the humidity and temperature in the classroom daily. "Both language development and musical development deal with aural stimuli" (Jordan-DeCarbo p.35). It is preferred the student be presented with an exact pitch for aural stimuli.

Computer Assisted Instruction

Some research analysis of data shows that computer-assisted instruction (CAI) shows significant gains in mean scores of music reading skills including staff identification. "Students in the (computer) lab mode" scored significantly higher on pitch identification (Roach, p.60).

> All children do not learn in the same way, and adding technology to the palette of teaching strategies is necessary to provide for all types of learning. Sound teaching strategies, used in conjunction with technology, allow for increased learning achievements (Forest, p.35).
>
> Computer-Assisted Instruction (CAI) which would include the use of skill based software and Technology-Based Education (TBE) which would include video tapes, VCR's camera equipment as well as computers and software will provide teachers with drills designed to target specific concepts of skill that they are already teaching through other means. The CAI and TBE present abstract concepts of music in concrete terms that students can understand both visually and aurally. Computer-Assisted Instruction in the music curriculum can focus on specific musical concepts or skills and with the enhancement of technology based instruction concepts and skills are applied to real music situations such as composition and improvisation. Today's students have an entirely new and exciting environment in which to experience music enabling the student to experience music at a very high level of thinking (Moore, p.30).

"Perhaps the greatest advantage of multimedia is its ability to grab and hold students' attention. Multimedia presentations are inherently motivating for students" (Baltzer, p. 34). CAI addresses both the visual and aural sense.

> There was considerable agreement in the students' evaluations that the technology held their interest very well. Don Coucette comments, "Certainly, one of the hopes of using multimedia in presentations is that it will be more effective in communicating with a generation of students weaned on highly visual media such as television and video games" (Mobley, p. 22).

Multimedia presentations have the advantage of engaging more than one sense. Consequently, it has been the opinion of this teacher that multimedia presentations in the classroom, quickly lead the student's attention into the objectives of a lesson and retain that attention throughout the teaching of the objectives.

Accuracy Variables

Music researches have investigated children's singing accuracy and the variables that could be involved in the lack of accuracy produced by the students. Group singing seems to produce more exact pitch in some students, and some students produce more exact pitch when singing independently. From pre-school through the second grade there does seem to be more accuracy in individual singing (Goetze, p.82). Accuracy in relationship to gender has resulted in conflicting studies. It has been observed that girls appear to produce more accurate pitch than boys do. Singing accuracy improves with maturity in both boys and girls (Cooper, p. 222-223). These variables will not be addressed in this small study, and that appears to be the problem with making a determination of the above factors. Many previous studies have been done with samples that are small and limited in scope. "The age of eight is considered the transitional point" between early childhood and middle childhood "because of work of developmental theorists, starting with Jean Piaget, who have identified a qualitatively different approach to thinking that develops in children at around that age" (Sims p. 204). Gantly attempted to determine if this theory applied to musical thinking as well. Gantly actually assessed subjects' ability to recognize flash cards, not pitch. "Music

educators in the United States generally have accepted these age ranges and definitions, although they are based on theory and research dealing for the most part with subject-matter fields other than music" (Sims p. 205).

> Even if Gantly had succeeded in demonstrating the substages found by Noelting how much would this finding have contributed to our understanding of working memory for the sounds and structures of music? Might Gantly have not been more successful if he had avoided the task of pitch perception? The manner in which his tasks were constructed provides less obvious relevance to real-life listening to music than conservation tasks, where a melody is presented with altered rhythm or a rhythm with altered melody (Gantly, p. 81).

The subjects in this study will be asked to reproduce small melodic segments, not real-life segments of actual music. The listening ability of subjects is difficult to assess whether the subjects are listening to small segments or longer phrases.

> Music reading requires the recognition that one musical note represents several characteristics of sound simultaneously, and music performance requires an understanding of the many ways in which elements of music may be combined. Determining the age level at which most children's thinking reflects musical decentration will assist in distinguishing between early and middle childhood.... To determine whether children's musical thinking is characterized by distinguishable stages of development, evidence is needed that documents age-related, qualitative differences in children's ability to respond to musical stimuli.... When asked to listen to a recording and make one musical discrimination at a time, the children performed with a very high level of accuracy (Sims, p. 206).

The second grade students in this study will respond to a pitch played on an electric keyboard. In terms of testing the student's ability to sing a pitch that the student has heard, the student must be able to hear the pitch and translate the pitch he has heard into the reproduction of that pitch with his vocal mechanism. One simple question, reproducing a pitch that has been heard, actually involves a very complicated physical and mental process. Any underdeveloped physical or mental ability in the student will effect the test results.

Chapter 3

METHODS AND PROCEDURES

Experimental Method

This study compared traditional teaching methods of music education, incorporating a combination of methods of Orff, Koday and Dalcroze with a commercial software program, Music Ace by Harmonic Vision. The lessons for this traditional teaching method came from the 1989 Tennessee Elementary Music Curriculum Guide. The lesson activities, goals and skills were comprehensive in scope but had not been updated to include technology usage in the framework of the document. The traditional group scores were compared to the Music Ace group scores in two ways. One second-grade classroom with fifteen students, including all ability levels in this school population, received lessons from the traditional approach. Another second-grade classroom with fifteen students, including all ability levels in this school population, received lessons from the Music Ace software. Each student took a written test at the conclusion of the study. In addition, each student's vocal production was measured with a chromatic tuner to identify accurate vocal pitch. The researcher conducted the assessment. The results of posttests for each individual were combined with those of his classmates. Each class's scores were then compared.

Subjects

The subjects in this study were thirty students ranging in age from seven to nine. Most students were eight years old. The subjects attended an inner-city at-risk Title I elementary school in Tennessee. The students were boys and girls who possessed a variety of ability levels and behaviors that existed in this school population. This included average students

as well as those who attended additional activities during the school day such as resource and TAG. There were a total of thirty-nine second grade students at the school. They were divided in the following manner: 15, 15, and 9 in the split 2/3-grade classroom. The researcher did not include the second grade students in the split class in either study group. Usually the split grade classes were taught the lessons for the older grade level. This practice was continued this year. The second grade students in the split classroom were chosen originally with these three criteria. They were to have no behavior problems. They were to work on grade level, and they were to be able to work independently. These three criteria were not strictly applied in the placement of students in the split class. The teacher stated that there were severe behavior problems, many students who could not work independently and two who were not on grade level. This group of second grade students appeared to be similar to the students in the two full second grade classrooms. There was no difference in ability levels, independent work habits or behavior problems in the three classrooms containing second grade students. One third of the school population lived in federally funded low-income housing. Two thirds of the school population lived in homes where the income ranged from low to middle-class. Student samples in the individual classrooms were representative of the ethnic and income blends of the community.

Subject Selection

The researcher chose which classroom of students became the treatment group for this study by the toss of a coin. Heads was the treatment group. The make-up of each class was randomly chosen from the school population. As new students were enrolled in the school, students were assigned to classrooms to keep similar numbers in each class.

Posttests

The lessons for this study began early in October 1999 and lasted four weeks. During the fifth week of the study, a posttest was given to each student. A Boss TU-12 Digital Processing Chromatic Tuner was used to accurately assess the student's ability to sing matching pitches G, A and B above middle C. As the teacher played the pitches on the piano the student sang the specific pitch. The chromatic tuner registered the pitch sung by the student. Each student was tested individually and received a correct if the pitch was correct. In addition the teacher designed a written test containing eleven questions, which determined the ability of the students to identify a musical staff, other simple notation and names of pitches on a staff. Each student was tested individually.

Statistics

The total of each classes' scores from the teacher-made posttest were compared with the total scores from the other class. There was no significant difference in the level of performance skills and understanding of symbols between the students in the traditional group and students in the treatment group at the .05 level of significance. The null hypothesis was retained.

The Traditional Method

The instructional objectives of the traditionally taught group were to experience symbols, which denoted melodic movement visually and aurally. The student skills included reading, singing, playing, moving, listening and creating. The content of the lessons was accomplished in sequential manner. The content included numbered lines and spaces on the staff, introduction of new pitches experienced by singing and playing over a period of time,

pitches introduced in relationship to each other in patterns, echo-singing patterns and making that transition to symbols and creating melodic patterns. The students experienced the new pitches through songs and singing games. The next step was echo singing of patterns that contain the new pitches using neutral syllables. Sequentially the new pitch was introduced in relationship to known pitches. Lessons were outlined from The Tennessee Elementary Music Curriculum Guide.

Software and Hardware

As stated earlier, music classes in this school system met for a limited amount of time and often the time was not optimal. With the implementation of one computer in the music classroom, connected to a large-screen TV and software as a teaching tool, it appeared that teaching with software was effective, especially for quickly hooking the students into the music lesson. The software application that was used for the treatment group is called Music Ace by Harmonic Vision. I used the large-screen TV connected to the computer for classroom lessons from Music Ace, which included drill, practice and creativity in forming independent melodic patterns. Students were introduced to the same content as the traditionally taught group: learning that there are lines and spaces on a staff, learning new pitches and being able to sing those pitches in patterns, students utilizing those pitches in singing, reading notated music, listening and creating music. Some students were able to read pitches from a staff and label one of the pitches so that the other pitches could be determined. New pitches were introduced with ample opportunity to experience singing the new pitches in the lesson and playing the game that accompanied the lesson. Students took turns at the computer, but all students sang all pitches in a group setting.

There is an assessment section in Music Ace with both individual and group assessment. Games in the software gave students practice time and allowed them to score against groups of students in their classrooms. Students had time to hear exact pitches and have fun at the same time. Students were able to practice creating their own melodic patterns in a section of the software called The Doodle Pad. Here students could create and sing their own notation both individually and as a class. This activity extended beyond the ordinary drill and practice.

The music teacher had one Power Macintosh 5500/250 connected to a 32" color Magnavox TV.

Experimental Factors

The experimental factor in this study was the inclusion of commercially produced music software, Music Ace by Harmonic Vision. Fifteen students in the treatment group received lessons two times a week for thirty minutes each session for four weeks. The total number of lessons for each class was eight. Students came to the computer desk to take turns using the mouse to answer questions.

Fifteen students in the control group, the traditionally taught group, also received lessons two times a week for thirty minutes each session for four weeks. The total number of lessons for each class was eight. Students in this group received no individual turns in front of classmates.

Chapter 4

RESULTS

Analysis of Data

There were 15 students in the traditional group and 15 students in the treatment group using the Music Ace software program by Harmonic Vision. The total of the test results was compared between the treatment group and the traditional group. The hypothesis of this study declared that there would be no difference in the scores at the .05 level of significance between the level of performance skills and understanding of symbols representing melody between the two groups. The hypothesis of this study was retained (see Table 1).

TABLE 1

Comparison of Post-test Means of Traditional and Treatment Groups

Group	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig. 2-tailed
Traditional	15	6.13				
			.13	1.02	.131	.897*
Treatment	15	6.00				

*.897 was not significantly different

When the number of correct answers was charted between the traditional group and the treatment group there was no definitive pattern of correct answers in the two groups (see Figure 1). The data of this study showed that there was no statistically significant difference at the .05 level of performance skills and understanding of symbols representing melody between the traditional group of second grade students and the treatment group of second grade students in this school-wide Title I inner-city school. The hypothesis was retained.

Figure 1

Comparison of Mean Scores

In addition to comparing the total scores, the researcher compared the correct answers of the traditional group and the treatment group in order to identify a specific area of competency. There was no part of the test that one group performed better on than the other group (see Figure 2). The first questions on the test were identification of musical symbols. 8 of 15 students in each group identified a musical staff in question 1. Question 2 asked the students to identify a treble clef sign. In the treatment group, 13 of 15 students answered correctly while only 9 of the students in the traditional group answered correctly. This might be significant until question 9. The treatment group only answered 1 question

correctly while the traditional group had 5 correct answers. Reproducing or singing of actual pitches produced almost identical results. There was no definitive pattern of correct answers for either group.

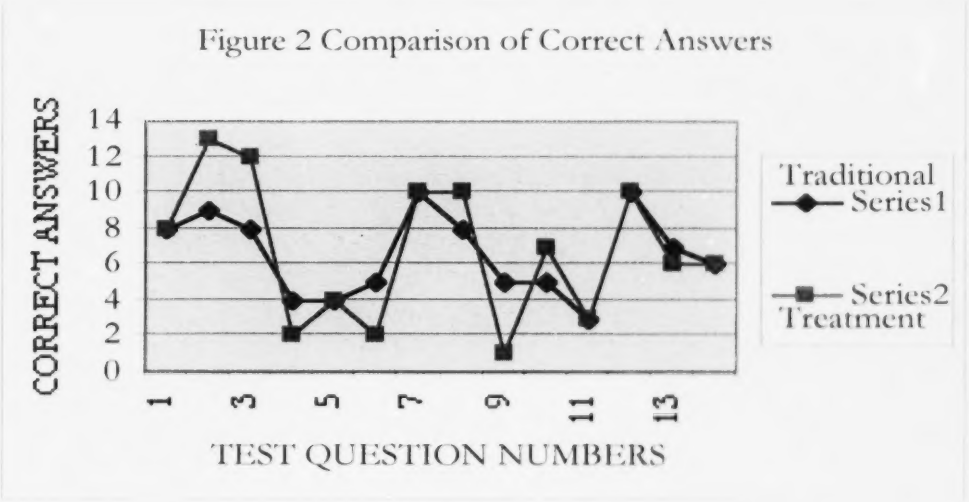

Figure 2

Comparison of Correct Answers

Chapter 5

SUMMARY, CONCLUSION, RECOMMENDATIONS

Summary

This study observed and tested 30-second grade students. Fifteen students were taught by the traditional method outlined in the suggested lessons and activities from the Tennessee Music Curriculum Guide of 1989 p. 84-86. Fifteen other students were taught the first 8 lessons from Music Ace software by Harmonic Vision. Each group received 8 lessons. Each lesson was taught in a 30-minute music period. Both groups were taught the same content. Each group was given the same teacher-made test (see appendices). Individual student's aural production was measured by A Boss TU-12 Digital Processing Chromatic Tuner as part of the teacher-made test.

Conclusions

The results of this study showed no statistically significant difference between the two teaching methods employed in the study. However, the researcher feels that the small number of students involved in the study certainly impacted the results of the study. The limited number of prescribed lessons that made up the study and lack of practice time definitely influenced the test results. The researcher feels that a larger, longer study, would show a significant differences in performance skills and understanding of written musical symbols between the Music Ace group and the group that had been taught in the traditional method. The researcher feels that the limitations of this research project prohibited sufficient teaching time for the teacher and practice time for the students.

The researcher did observe many significant behaviors in the treatment group.

The students in the Music Ace group were quickly "drawn" into the lesson. Attention appears to increase. Music time was efficiently used and pitch was always perfect using the Music Ace software. These additional factors may be the starting point for further study on a much larger scale than this researcher was able to study.

Recommendations

This researcher recommends that future research projects comparing software with traditional teaching methods incorporate larger numbers of students. Various grade levels should also be researched using the two methods. This research should be duplicated in other school settings as well. Results may vary from inner-city schools to more affluent school settings. It is also recommended that more material be covered over a longer period of time. More extensive units of study would certainly be in order for more learning to take place.

This researcher had previously taught most of the students involved in this study. A pre-test was not given since this researcher was aware of material previously taught to these students. Future inquiry might consider a pre-test to more accurately measure the material learned. That was not the purpose of this research. More extensive testing of this software and other music software programs in various settings is certainly recommended. This researcher also recommends that even though the statistical significance of performance skills and understanding of musical symbols was not significant, there was a decided difference in the behavior and attention of the students using software as a teaching tool. Nothing can beat the visual effects that are included in the multimedia presentations of software in getting and keeping the attention of the students. Measurement of attention spans and appropriate behaviors would also be a valid research project. Music software such

as Music Ace should be incorporated in music instruction. The visual effects, the perfect pitch, repeated upon command is certainly appropriate for classroom use.

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APPENDICES

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Dr. Charles Q. Lindsey, Superintendent

November 3, 1999

Ms. Barbara S. Baker
314 Hermitage Road
Knoxville, Tennessee 37920

Dear Ms. Baker:

You are granted permission to contact appropriate building-level administrators concerning the conduct of your proposed research study entitled, "A Comparison of a Traditional Music Teaching Method with Music Ace." In the Knox County schools final approval of any research study is contingent upon acceptance by the principal(s) at the site(s) where the study will be conducted.

In all research studies names of individuals, groups, or schools may not appear in the text of the study unless *specific* permission has been granted through this office. The principal researcher is required to furnish this office with one copy of the completed research document.

Good luck with your study. Do not hesitate to contact me if you need further assistance or clarification.

Yours truly,

Samuel E. Bratton, Jr.

Samuel E. Bratton, Jr., Ed.D.
Coordinator of Research and Evaluation
Phone: (423) 594-1740
Fax: (423) 594-1709

Project No. 019

P.O. Box 2188 • 912 South Gay Street • Knoxville, Tennessee 37901-2188 • Telephone (423) 594-1800

Permission to Participate in a Study

I give permission for my child, _____

to participate in a research study conducted by Barbara S. Baker to learn if music software will increase the aural awareness in my child. I understand that my child will not be identified in the research paper in any way. I understand that my child may or may not be using the software as a part of the study, but if the software proves to be beneficial, he or she will have access to it after the study is completed.

_____ _____

Parent Signature Date

MUSIC READING

_____ _____

Class Name

Circle the correct answers to the questions below. Be careful, there may be more than one answer.

1. A musical staff looks like this:

a. b. c.

2. A musical staff has _____ and _____.

a. lines b. instruments c. spaces

3. Notes that are higher or lower than the musical staff can go on _____ _____.

a. treble clefs b. ledger lines c. two staffs

4. Pitches that are high on the staff are_____ _____.

a.high sounds b. high staffs c. treble clefs

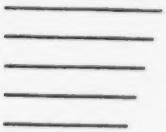
5. Pitches that are low on the staff are_____ _____.

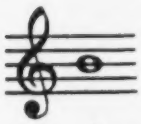
a. low sounds b. low staffs c. bass clefs

6. Circle the treble clef sign.

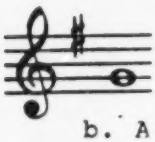
a. b. c.

7. Circle the bass clef sign.

a. b. c. 

8. Name this note. 

a. G b. A c. B

9. Name this note. 

a. G b. A c. B

10. Name this note.

a. G b. A c. B